

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #17
TRANSMISSION SYSTEM ENGINEERING

BACKGROUND

The California Environmental Quality Act (CEQA) requires the identification and description of the “Direct and indirect significant effects of the project on the environment.” For the identification of indirect or downstream transmission impacts, staff relies on the System Impact and Facilities Studies as well as review of these studies by the agency responsible for insuring that the interconnecting grid meets reliability standards, in this case, the Imperial Irrigation District (IID). The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause the transmission to violate reliability requirements, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include the construction of downstream transmission facilities. CEQA requires the analysis of any downstream facilities for potential indirect impacts of the proposed project. Without a complete System Impact Study, staff is not able to fulfill the CEQA requirement to identify the indirect effects of the proposed project.

According to the System Impact Study,” The interconnection of the proposed generating facility to the existing 92 kV transmission system was found to have no significant impact on the IID system as shown by the lack of overload and voltage violations.” The study also found that the proposed project would have minimal affects on the transmission networks of neighboring utilities. However, staff is concerned that the study is not complete and does not provide mitigation measures for identified overloads.

The System Impact Study identified overloads in some transmission elements (Page 5 of the system impact study report), but did not address the mitigation measures required to eliminate the overloads. The study also did not analyze the effect of the potential outage of the El Centro switching station 92 kV bus where about twelve 92 kV transmission lines, two step-up transformers (230/92 kV & 161/92 kV), and four El Centro generators are now connected. Because this outage was not studied, no mitigation for a possible overload was identified, and impacts of the proposed project may have been missed. Staff has included a list of other contingencies or outages that were not included in the System Impact Study (located after Data Requests 16 and 17).

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #17
TRANSMISSION SYSTEM ENGINEERING

DATA REQUEST

17. The SIS did not provide the transient stability plot diagrams or generator rotor angle plots for the full load rejection case, which should include both the new CTG unit 3 and the STG unit 3. Also the transient stability studies for the 92 kV and 161 kV systems were performed using a 4-cycle fault clearing time which is typically used for 230 kV and higher systems.
- a. Please explain why the 4-cycle clearing time was used instead of the more typical 8-cycle or greater and whether or not changing the clearing time on the analysis would affect the conclusions of the study for the contingencies listed below.

Contingency List for Data Request 17

- Loss of GSU transformers for the new CTG unit 3 and the STG unit 3.
- El Centro switching station 92 kV bus fault.
- El Centro switching station 161 kV bus fault.
- El Centro switching station 230 kV bus fault.
- Loss of El Centro-Pilot Knob 161kV line.
- Loss of El Centro-Niland and El Centro – Avenue 58 161 kV lines.

DATA RESPONSE

Due to the varying ages of the 92 kV and 161 kV breakers at the El Centro Switching Station, we agree that the 4 cycle clearing time may be “too fast” for the older breakers. However, 8 cycles for a fault clearing time, as Staff suggests, is too long for close in faults to El Centro. IID will be examining more realistic times (closer to 6 cycles) for future analysis. However, for purposes of this data request, all of the additional contingencies requested by Staff have been conducted at 8 cycles (including the El Centro 230-kV bus outage, for consistency) (see Attachment H, Supplemental Stability Switch Decks, and Attachment I, Supplemental Stability Plots). As discussed in an earlier data response, the El Centro Switching Station 92-kV bus has a double breaker configuration and an outage of the bus would not result in the loss of any elements; therefore, only a 92-kV bus fault lasting 8 cycles was conducted for that specific request.

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #17
TRANSMISSION SYSTEM ENGINEERING

The additional analysis concluded that loss of the elements as requested would not result in any stability violations.

In conclusion, the additional transient stability outages requested by Staff continue to support the SIS conclusions that the interconnection of the El Centro Unit 3 Repower Project meets the reliability requirements for interconnection to the El Centro 92 kV Switching Station.

ATTACHMENT H
TRANSMISSION SYSTEM ENGINEERING
SUPPLEMENTAL STABILITY SWITCH DECKS

ATTACHMENT I
TRANSMISSION SYSTEM ENGINEERING
SUPPLEMENTAL STABILITY PLOTS